Nessler's test is made, as all the world knows, by saturating a solution of potassium iodide with mercuric iodide, and adding an excess of caustic potash. Ammonia gives with this a reddish precipitate; tannin a brown, and when in considerable quantity a deep black one; but if little tannin be present, the brown may tend towards purple. It goes without saying that much experiment must be undertaken before one can be sure of the substance giving the brown precipitate being really tannin. To be conclusive, such experiment should be carried out in four different directions:—

(1) The reaction ought to be given in all cases when the ordinary reagents make their presence immediately felt.

(2) Cells which will not immediately give the tannin reaction with ordinary tests, but which will do so with Nessler's test, must also do so under the former conditions if time be allowed.

(3) Tissues which will not yield the reaction with Nessler's test, must not give it with any other reagent even after the lapse of some time.

(4) Solutions of tannin must give a brown precipitate with Nessler's test.

Under the first of these headings may be mentioned growing shoots of the garden rose. On laying a radial longitudinal or a tangential section of this in Nessler's fluid a copious black-brown precipitate is obtained, and the same thing occurs with the beautiful tannin-sacs of *Musa sapientum*. In all other instances where tannin has betrayed its presence by the use of ordinary reagents, the brown colour has been obtained upon treatment with Nessler's test.

The primrose leaf may be again cited as an example of the time sometimes necessary to show up tannin with the usual reagents, of which it must here suffice to particularize ammonium molybdate. On laying in the molybdate a small piece of epidermis torn off the lower side of the leaf, one first sees a cell here and there coloured the characteristic and beautiful yellow given by this test: these coloured cells are usually situated among the elongated more or less rectangular cells overlying the vascular bundles. Re-examination after half an hour or so shows several more of the cells similarly coloured, but it is usually not till after a couple of hours that one can safely declare all the tannin-containing cells to have been stained. With variations in respect of time, and with the sole exception of osmic acid, all the other tests act in precisely the same way; even Möll's, preferred to all others by some of our Continental *confrères*, being as unsatisfactory as the rest. But sooner or later its characteristic colour is imparted to these cells by every reagent, thus proving tannin to be present.

For the negative experiment—the absence of the brown colour from tissues treated with Nessler's fluid, and its absence from the same tissues when acted upon by ordinary tannin reagents—recourse was again had to epidermis. The experiment succeeded in all cases: among these may be cited *Fatsia japonica*, wallflower, box, *Stellaria media*, and *Pelargonium zonale*. In none of these did tannin show up, although twenty-four hours were allowed to elapse before the preparations were destroyed.

Lastly, Nessler's fluid gives a rich brown precipitate with solutions of tannin. Moreover, with gallic acid a grey-green one is thrown down, thus affording an easy means of distinguishing between these bodies.

For these reasons, therefore, viz. the rapidity, certainty, and distinctness of its action; the ease with which it can be made; its permanence when made; and lastly, the difference in its behaviour towards tannin and towards gallic acid—for these reasons I am bold enough to anticipate the time when, to adapt a hackneyed expression, Nessler's fluid will be regarded as a reagent which no botanical laboratory should be without.

SPENCER MOORE.

The Moon in London.

SOME years ago a weekly paper represented a young rustic asking his mother, "Be that the same moon they have up to Lunnon?" to which question the mother evasively replied, "You leave the moon alone and go to bed." The boy was satisfied by retorting, "I baint a touching on it." But his question is this month brought once more to the front by the following passage, which will be found in one of our most important monthly magazines. "But if," says the writer, "there is an abuse of the deductive method of reasoning, there is also an abuse of the inductive method. One who refused to believe that a new moon would in a month become full, and, disregarding observations accumulated throughout the past, insisted on watching the successive phases before he was convinced, would be considered inductive in an irrational degree." We cannot, of course, presume to dictate to or for the moon "up to Lunnon," but here in the country the new moon becomes full in half a month, and we have convinced ourselves by watching the successive phases that a new moon will in a month become a new moon again. Nevertheless we willingly admit that life is far too short and too encumbered to allow of any man's repeating more than a small fraction of the accumulated observations on which his scientific beliefs are founded. Yet, on the other hand, taking things for granted is probably the source of nine-tenths of the errors that fill our minds, while the men of genius seem to be just those who know best what and how to observe for themselves, and how much to trust in the observations of others.

T. R. R. STEBBING.

Tunbridge Wells.

Foreign Substances attached to Crabs.

THERE is, of course, no analogy between whiffing for mackerel with red flannel, and fishing for cod on the bottom with any kind of bait.

If Actinians are offensive to fish, it is a singular fact that, when a cod-line is baited with mussels, herring, sand-eels, and anemones (viz. *T. crassicornis* and *A. mesembryanthemum*), the latter prove by far the most successful baits.

Impalement on a hook by no means kills an anemone, whose powers of offence are, perhaps, little lessened thereby; and under natural conditions the tentacles are not always expanded. Though the full-grown cod does not affect the tidal waters of the coast, yet the "rock" cod, by no means the youngest of its species, ventures close inshore; and the largest cod abound amongst the tidal waters of the Bell Rock.

The cnidæ of an anemone seem very efficient weapons against a soft-skinned Cephalopod, but they are not necessarily so against a tough-skinned fish.

Prof. McIntosh, in the work referred to in a previous letter, records *Tealia* and *Peachia* from the stomach of the cod, and *Edwardsia* (in swarms) from that of the flounder. He also informs me that he has found *Stomphia* in the stomach of the cod. I may add that the practice of baiting here with anemones is much more recent than the work referred to.

Of all British Cœlenterates, *Cyanæa* is, perhaps, the most deadly; yet many trustworthy observers have found young cod sheltering themselves beneath its umbrella—a fact which seems to indicate that they hold its stinging powers in some contempt; and Dr. Collingwood, in "A Naturalist's Rambles in the China Seas" (p. 150), has recorded the discovery of an immense fish-sheltering anemone.

ERNEST W. L. HOLT.

St. Andrews Marine Laboratory.

The Relative Prevalence of North-east and South-west Winds.

IN a note at p. 470 (NATURE, March 20), attention is drawn to the statement by Mr. Prince contained in his meteorological summary of observations taken at Crowborough, Sussex, in 1889, concerning the greater prevalence of north-east as compared with south-west winds which he finds to exist in recent years. The writer of the note mentions that this is not borne out by the Greenwich observations, but some definite statistics as regards Greenwich, and distinct comparison with the Crowborough numbers, may perhaps not be unacceptable to your meteorological readers.

Mr. Prince remarks that in previous years he finds only two years in which north-east winds have been in excess of south-west. In the first, 1864, the days of north-east wind were 104, of south-west wind 89; in the second instance, 1870, the days of north-east wind were 107, of south-west wind 88. The corresponding Greenwich numbers were, in 1864, 43 and 108; and in 1870, 65 and 96.

On the average of the years 1859 to 1883 Mr. Prince gives north-east wind on 63 days, south-west wind on 99 days. The corresponding Greenwich values are 43 and 111 respectively. For the years 1885 to 1889 he gives the average frequency of different winds as follows, to which I have added the values for Greenwich. C. indicates Crowborough, and G. Greenwich.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	
C.	41	102	21	22	38	72	50	17	—	days.
G.	49	52	35	23	37	100	40	19	10	days.

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He further gives the averages for 47 years, to which I have added those for Greenwich for 49 years.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	
C. (47 y.)	33	63	29	27	28	91	59	35	—	days.
G. (49 y.)	40	45	27	22	35	106	46	22	22	days.

The Greenwich values are determined from numbers derived from the records of the self-registering Osler anemometer of the Royal Observatory as given in the annual Greenwich volumes. The preponderance of south-west wind over north-east seems to have been, throughout, less at Crowborough than at Greenwich. But it is only in recent years that the difference has become so pronounced, the Crowborough numbers for each year 1885 to 1889 being largely in excess for north-east wind, whilst the Greenwich numbers are greatly in excess for south-west, as in former years. At Greenwich during the first 24 years of the 49 years series, the average number of days of north-east wind was 46, of south-west wind 107; during the last 25 years, of north-east wind 44, of south-west wind 106.

It would be very interesting if a similar comparison could be made with some other station in the south of England.

Greenwich, April 16. WILLIAM ELLIS.

Science at Eton.

IN the *Illustrated London News* for March 29 I find an account (with illustration) of an astronomical lecture at Eton. It appears that the scholars "were allowed" to listen the other day, in the new lecture-room, to a lecture by Major-General A. W. Drayson, R.A., on the second rotation of the earth and its effects.

General Drayson has written some books on this subject which possibly no one has answered, for the simple reason that they answer themselves; but it seems now, that he is permitted, under the auspices of their teachers, to urge his paradoxes on the students of our largest public school.

Is Eton without any science teacher? or is the so-called teacher incapable of preventing absurdities being put forward with authority? Are the lecture-rooms of Eton College open to "Parallax" and the circle-squarers? J. F. TENNANT.

MODIGLIANI'S EXPLORATION OF NIAS ISLAND.

ABOUT two years ago, on his return to Florence, I gave a brief account of Dr. Elio Modigliani's very successful and interesting exploration of Pulo Nias (NATURE, vol. xxxv. p. 342). We have now before us the general results of that exploration, embodied in a portly volume most elegantly got up, rich in maps and illustrations, and, what is better, full of interesting facts, carefully collated notices, and well pondered and carefully drawn deductions; in short, one of the best books of its kind.[1]

Judging from what he has done, Dr. Modigliani is evidently made of the stuff which produces the best explorers. Resolute and persevering, moved by what we in Italy call *il fuoco sacro*, ever ready to put up with privations of all kinds, although accustomed to a very different sort of life, a quick and keen observer, he has indeed done wonders; and considering that he has not had the advantage of any special training in natural science, he has shown himself to be a good geographer and ethnologist, and a clever naturalist.

Dr. Modigliani's choice of the island of Nias as the field of his explorations was a singularly happy one, in which he was guided by no less a man than Odoardo Beccari. Few indeed of the hundreds of islands of that wonderland, the Malayan Archipelago, present such an accumulation of interesting problems as Nias. Lying off the ocean seaboard of Sumatra, and partaking naturally of the characteristic features of its big neighbour, it has a flora and fauna with a remarkable number of special characteristics, whilst its human inhabitants show strange affinities with people of other races and of distant lands.

I shall now endeavour to give a concise account of Dr. Modigliani's exploration of Nias, and of the results he obtained, as given in his book. Dr. Modigliani left Italy at the end of 1885; he paid a rapid visit to India, crossing overland from Bombay to Calcutta, *viâ* Delhi and Agra, and visiting Darjiling; he touched at Rangoon, and after a short stay at Singapore and a lengthened one in Java, where at Batavia and Buitenzorg he prepared his local equipment, and engaged Javanese hunters and collectors, he reached Siboga, Sumatra, early in spring, 1886. Thence he started for Gunong Sitoli, the only civilized port of Nias, on one of the Dutch Government *Kruis* boats on April 14. Dr. Modigliani spent five months on the island, which he left in the middle of September. On his way back to Italy he completed the tour of Sumatra, touching at Kota Rajah and Olelek (Acheen), visited Singapore again, touched at Colombo, and crossed India a second time from Madras to Calicut, visiting the Todas and some of the hill tribes of Southern India, which had a special interest for him in his researches on the origin and affinities of the people of Nias. Dr. Modigliani brought back with him from Nias extensive and important collections—ethnological, zoological, and botanical—and whilst these were being studied by specialists, he actively set to work arranging and sorting his notes and the material for his book. Undertaking to deal with all the ethnological part himself, he visited the more important ethnographical museums of Europe, and even the minor ones where he knew that specimens from Nias were to be seen. To complete his historical and geographical researches regarding Nias, Dr. Modigliani paid a lengthy visit to Holland, working in the Libraries and Government Archives at the Hague and Leyden. I, who have had many opportunities of observing and admiring his untiring energy and activity, could hardly feel surprised, on reading his book, to find it so full of information and so excellently well done.

Dr. Modigliani has divided his work on Nias into two parts. The first contains three chapters, and is entirely introductory and historical; the second, in twenty-three chapters, with appendices and bibliography, contains the narrative of his sojourn in Nias, and his own personal observations and studies on men and things in that island. I have little to say on the first part of Dr. Modigliani's book except that it embodies the results of much erudition and careful and patient collation. From the earliest semi-fabulous notices of Al-Neyan, El-binan, Neya, Niha, Nia, in ancient Arabic and Persian manuscripts, we are brought to European intercourse with Tano Niha, as the natives call their island, and thence on through the modern vicissitudes of Dutch domination, which to this day is little more than nominal, except at Gunong Sitoli and in the northern portion of the island, where, however, German missionaries appear to have done more to spread the influence of civilization than the colonial authorities.

Part II. occupies by far the greater portion of Modigliani's bulky volume. After telling us how he travelled to Nias from Siboga—an adventurous crossing with a Malayan crew, a bad boat, and dirty weather—Dr. Modigliani devotes a chapter to the geography, meteorology, and geology of Nias. The island is hilly, but can hardly be called mountainous. A notable feature is the frequency of earthquakes, easily explained by the proximity of the volcanic chain of Sumatra. Rivers and watercourses are numerous, but few are of notable size. Geologically, Nias is evidently of recent formation; a collection of rock samples brought together by Dr. Modigliani might have shed much light on this interesting subject, but it was unfortunately lost. Madreporic limestone and clams (*Tridacna*) were noted on the hill-tops; true lignite has, however, been found in various parts. The Dutch colonial authorities deserve much praise for their

[1] Elio Modigliani, "Un Viaggio a Nías." Illustrato da 195 incisioni, 26 tavole tirate a parte e 4 carte geografiche. Pp. xv.–726. (Milano: Fratelli Treves, 1890.)

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